

PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C. 20231
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 05 October 2000 (05.10.00)	
International application No. PCT/US00/01473	Applicant's or agent's file reference BEN020347PCT
International filing date (day/month/year) 21 January 2000 (21.01.00)	Priority date (day/month/year) 22 January 1999 (22.01.99)
Applicant BIEL, John, P., Jr. et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:
16 August 2000 (16.08.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer <p style="text-align: center;">Kiwa Mpay</p> Telephone No.: (41-22) 338.83.38
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From the INTERNATIONAL BUREAU

PCT

**NOTICE INFORMING THE APPLICANT OF THE
COMMUNICATION OF THE INTERNATIONAL
APPLICATION TO THE DESIGNATED OFFICES**

(PCT Rule 47.1(c), first sentence)

To:

CARRIER, Robert, J.
Price, Heneveld, Cooper, DeWitt &
Litton
695 Kenmoor, S.E.
P.O. Box 2567
Grand Rapids, MI 49501
ETATS-UNIS D'AMERIQUE

RECEIVED

AUG 08 2000

PRICE, HENEVELD, COOPER,
DEWITT & LITTON
PER Robert J. Carrier

Date of mailing (day/month/year) 27 July 2000 (27.07.00)		
Applicant's or agent's file reference BEN020347PCT		IMPORTANT NOTICE
International application No. PCT/US00/01473	International filing date (day/month/year) 21 January 2000 (21.01.00)	Priority date (day/month/year) 22 January 1999 (22.01.99)
Applicant BENTELER AUTOMOTIVE CORPORATION et al		

1. Notice is hereby given that the International Bureau has communicated, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this Notice:
AU,JP,KP,KR,US

In accordance with Rule 47.1(c), third sentence, those Offices will accept the present Notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:
AE,AL,AM,AP,AT,AZ,BA,BB,BG,BR,BY,CA,CH,CN,CR,CU,CZ,DE,DK,DM,EA,EE,EP,ES,FI,GB,GD,
GE,GH,GM,HR,HU,ID,IL,IN,IS,KE,KG,KZ,LC,LK,LR,LS,LT,LU,LV,MA,MD,MG,MK,MN,MW,MX,NO,
NZ,OA,PL,PT,RO,RU,SD,SE,SG,SI,SK,SL,TJ,TM,TR,TT,TZ,UA,UG,UZ,VN,YU,ZA,ZW
The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).

3. Enclosed with this Notice is a copy of the international application as published by the International Bureau on
27 July 2000 (27.07.00) under No. WO 00/43103

REMINDER REGARDING CHAPTER II (Article 31(2)(a) and Rule 54.2)

If the applicant wishes to postpone entry into the national phase until 30 months (or later in some Offices) from the priority date, a demand for international preliminary examination must be filed with the competent International Preliminary Examining Authority before the expiration of 19 months from the priority date.

It is the applicant's sole responsibility to monitor the 19-month time limit.

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination.

REMINDER REGARDING ENTRY INTO THE NATIONAL PHASE (Article 22 or 39(1))

If the applicant wishes to proceed with the international application in the national phase, he must, within 20 months or 30 months, or later in some Offices, perform the acts referred to therein before each designated or elected Office.

For further important information on the time limits and acts to be performed for entering the national phase, see the Annex to Form PCT/IB/301 (Notification of Receipt of Record Copy) and Volume II of the PCT Applicant's Guide.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. (41-22) 740.14.35	Authorized officer J. Zahra Telephone No. (41-22) 338.83.38
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/01473

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : B01D 53/34, 53/92; F01N 3/38

US CL : 422/173, 174, 177, 179, 180; 60/299

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 422/173, 174, 177, 179, 180; 60/299, 300

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EAST

Search terms: radiation shield, bellow, vacuum insulation, catalytic converter

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,419,876 A (USUI ET AL) 30 May 1995, see entire document.	1-22
Y	US 5,477,676 A (BENSON ET AL) 26 December 1995, see entire document.	1-22



Further documents are listed in the continuation of Box C.



See patent family annex.

<p>* Special categories of cited documents:</p> <p>*A* document defining the general state of the art which is not considered to be of particular relevance</p> <p>*B* earlier document published on or after the international filing date</p> <p>*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>*O* document referring to an oral disclosure, use, exhibition or other means</p> <p>*P* document published prior to the international filing date but later than the priority date claimed</p>		<p>*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>*&* document member of the same patent family</p>
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Date of the actual completion of the international search

24 APRIL 2000

Date of mailing of the international search report

11 MAY 2000

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

HIEN TRAN

Telephone No. (703) 308-0661

DEBORAH THOMAS
PARALEGAL SPECIALIST

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/01473

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Please See Extra Sheet.

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/01473

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION WAS LACKING

This ISA found multiple inventions as follows:

This application contains the following inventions or groups of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

Group I, claim(s) 1-11, drawn to a catalytic converter for control exhaust emissions in a vehicle.

Group II, claim(s) 12-22, drawn to a catalytic converter for control exhaust emissions from a diesel engine.

The inventions listed as Groups I and II do not relate to a single inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The special technical feature of Group I is an intermediate housing.

The special technical feature of Group II is a thermal management system.

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ :

B01D 53/34, 53/92, F01N 3/38

A1

(11) International Publication Number:

WO 00/43103

(43) International Publication Date:

27 July 2000 (27.07.00)

(21) International Application Number: PCT/US00/01473

(22) International Filing Date: 21 January 2000 (21.01.00)

(30) Priority Data:

60/116,839

22 January 1999 (22.01.99)

US

(71) Applicant (for all designated States except US): BENTELER AUTOMOTIVE CORPORATION [US/US]; Suite 500, 50 Monroe Avenue, N.W., Grand Rapids, MI 49503-2656 (US).

(72) Inventors; and

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(74) Agent: CARRIER, Robert, J.; Price, Heneveld, Cooper, DeWitt & Litton, 695 Kenmoor, S.E., P.O. Box 2567, Grand Rapids, MI 49501 (US).

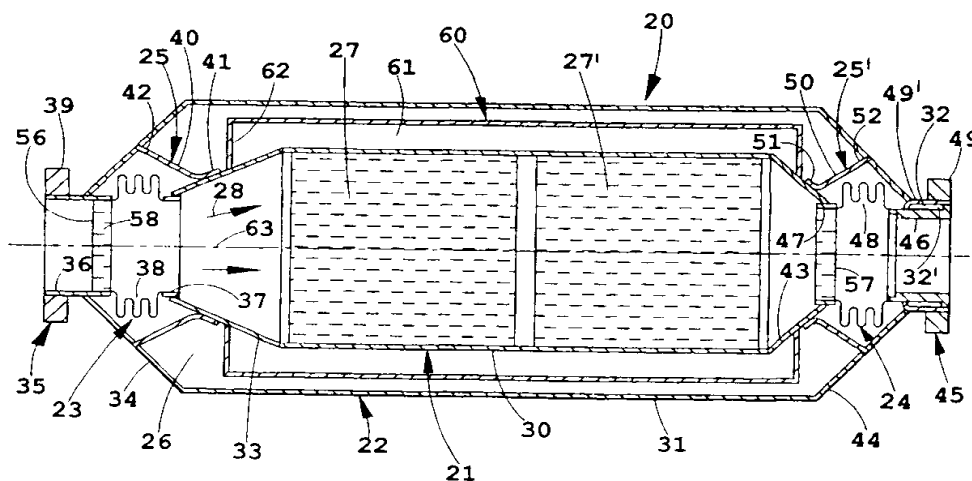
(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW. ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), European patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), Eurasian patent (AM, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published

With international search report.

With amended claims.

(54) Title: VACUUM-INSULATED EXHAUST TREATMENT DEVICE WITH PHASE CHANGE MATERIALS AND THERMAL MANAGEMENT SYSTEMS



(57) Abstract

A thermally-activated exhaust treatment device, such as a catalytic converter (20) adapted to control exhaust emissions in a vehicle, includes a core having an inner housing (21) and a catalytic material (27) chosen to reduce undesirable emissions from the exhaust of a combustion engine. A jacket includes an outer housing (22) enclosing the inner housing (21) but characteristically not contacting the inner housing (21). The inner and outer housings (21, 22) include walls (30, 31) forming a vacuum-drawn sealed insulation cavity (26) around the inner housing (21). A chamber (60) positioned adjacent the inner housing (21) includes low melting point metal phase change material (61). A thermal management system is operably connected to the insulation cavity (26) that is constructed to control heat flow from the inner housing (21) to maximize the time the catalytic material (27) is within a predetermined optimum temperature operating range or limit catalyst maximum temperature.

FOR THE PURPOSES OF INFORMATION ONLY

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